Chart Review: Prophylaxis of *Pneumocystis* Pneumonia at a Large Metropolitan HIV Clinic

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INTRODUCTION

Prophylaxis is imperative for *Pneumocystis* pneumonia (PCP), an important cause of morbidity and mortality in patients with human immunodeficiency virus (HIV) infection. Despite the availability of well-known prophylaxis guidelines and highly active antiretroviral treatment (HAART), PCP remains a leading opportunistic infection and an AIDS-defining diagnosis.[1] Several antimicrobial agents are effective as prophylaxis against this organism, and prescribing differences are largely influenced by reports of allergies.

We undertook a review of electronic medical records (EMRs) to determine whether the HIV clinic of the University of Pittsburgh Medical Center was complying with recommendations that PCP prophylaxis be prescribed for all HIV-infected persons with CD4 counts of below 200 cells/mm^3.[2] We evaluated the prophylactic regimens of these patients to assess whether preventive measures were given and which regimen was used. We also recorded the relative proportions of the various regimens and assessed whether glucose-6-phosphate dehydrogenase (G6PD) testing was performed before dapsone was administered, given the concern about hemolysis in G6PD-deficient patients.[3] The clinic, which treats approximately 1,500 HIV-infected individuals annually, is funded by the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act.

METHODS

The chart review included all patients enrolled in care from January through December 2007 who had a CD4 count of below 200 cells/mm^3 (and who did not have a subsequent CD4 count within the year above 200). After we identified this patient population, we manually used the chart review to identify prophylaxis regimens for PCP. In patients who received dapsone, we reviewed the charts to ascertain whether G6PD testing had been performed.

RESULTS

Two hundred thirteen patients were found to have CD4 counts below 200 cells/mm^3, and all of these individuals (100%) were following a PCP prophylaxis regimen. Approximately 75% of the patients received TMP/SMX (trimethoprim/sulfamethoxazole, Bactrim, Septra), 14% received dapsone, 6% were given pentamidine, 6% were given atovaquone (Mepron, GlaxoSmithKline), and fewer than 1% received sulfadiazine (Figure 1). Of those who received dapsone, only five of 29 patients (6%) were screened for G6PD deficiency. All findings were negative.

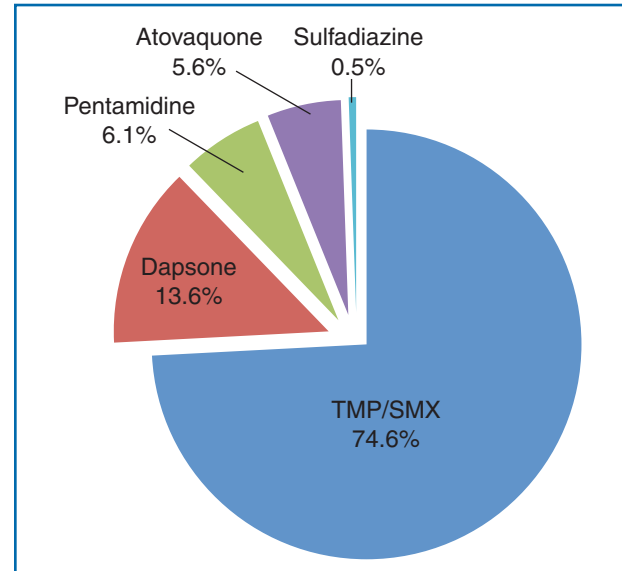

Figure 1 Prophylactic regimens for *Pneumocystis* pneumonia. TMP/SMX = trimethoprim/sulfamethoxazole.

DISCUSSION

PCP prophylaxis at our institution is well established, and compliance with the guidelines is evident, as is the case with most other Ryan White–funded clinics.[4] Because prior rates of PCP prophylaxis were not ascertained in a systematic manner, it was difficult to compare previous years. The growing use of PCP prophylaxis regimens probably reflects the ease of prescribing (because aerosolized pentamidine is used only in a minority of patients) and the strength of guideline recommendations for various regimens.[2] Nationwide estimates of the types of prophylaxis are not readily available, but we believe the proportions of prescriptions at our center are probably representative of most clinics. Underscoring the importance of prophylaxis, a study from Atlanta reported that only 31% of patients with a diagnosis of PCP were receiving a prophylactic regimen.[5]

G6PD testing preceding the use of dapsone, although commonly thought to be desirable or ideal, does not appear in the guidelines for opportunistic infections and is likely not neces-

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sary unless a strong familial predisposition suggests the presence of the condition. Moreover, hemolytic crises have been reported in individuals with normal G6PD levels.[3] In our clinic, no cases of hemolysis were reported. One case of methemoglobinemia was detected in a patient with normal G6PD levels who was receiving dapsone.

During the study period, our clinic physicians cared for seven hospitalized patients with PCP. Of these patients, five had not previously attended our clinic. One patient had been lost to follow-up for two years but had been prescribed PCP prophylaxis, and one patient was noncompliant with his prescribed medications. The distribution of these cases of PCP underscores the need for HIV-infected patients to be connected to a health care professional in order to minimize complications from this disease, including opportunistic infections.

CONCLUSION

Rates of PCP prophylaxis were at optimal levels at our institution, with most patients receiving the preferred regimen of TMP/SMX. G6PD testing of recipients of dapsone was performed infrequently.

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